usual materials. Dead willow wood provided only "a slow and punky" fire.

Mortars

The stone mortar and pestle (koi´wus and po´lwai) were obtained through trade with people of the foothills. Mayfield comments that mortars taken by the Choinimni to Tulare Lake were not brought back. Because he saw one dug up at a previous camping site, he believed they all were buried, but more probably many disappeared in trade to the Tachi.[42] The oak mortar (pe´wus), gotten from neighbors in the roblar, was used with a wooden pestle (ma´ta) (M.G.).

Kroeber states:

> The most common form of these among the Tachi was one of white oak. The flat-bottomed wooden block was a little more than a foot high, half as much again in diameter. Except for a narrow rim, the whole upper surface was excavated a few inches, chiefly by fire; but the actual pounding was done in a smaller doubly sunk pit in the center. The pestle was the same as on bedrock. Even the hill Chukchansi knew the wooden mortar, which they called Kowish; and the Choinimni used it.[43]

J.A. insisted that the metate or flat grinding stone (hise´ts) and mano or grinder (lo´wat) were used before Mexican intrusion. Particularly they were used for unshelled seeds, which were rubbed on it, then transferred to the mortar for pulverizing. "All ordinary people had them." Kroeber illustrates a flattish grinding stone from the "Kings River Yokuts" but seemingly there is no textual reference to it.[44]

Bedrock mortars were, of course, unavailable in the valley plains and lake region.

Powers states:

> Around the lake and on Kings River one will often find a family using a well-made stone mortar. They always admit that they did not manufacture these implements, but happened on them in digging or found them on the surface, and that they belonged to a race other than their own. They sometimes have the ingenuity to improve on them by fastening a basket hopper around the top to prevent the acorns from flying out. On the west side of Tulare Lake these mortars are very numerous, and of course they must have been carried thither from the mountains.[45]

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[42] Latta, Uncle Jeff's Story, 31, 37.

[43] Handbook, 527-528, pl. 45.

[44] Ibid., pl. 66.

[45] P.377. "Thither from the mountains" is probably thither from the Coast Range, not the Sierra Nevada.

412 The Telamni wooden mortar was described by
322 B.O., a Waksachi informant, during his discussion of trade (see Pt. II). The mortar was made from the crotch of an oak tree which, being of mixed grains at this point, was very hard. It was burned down to a rough size, then burned at the heart and the charcoal scraped and chopped out. This treatment was given inside and out until the desired size was reached. A slender pestle of stone was used with it.
[438] These mortars the Telamni sold to the lake-dwellers, Chunut, Tachi, and Wowol, preferring for themselves stone mortars of both large and small sizes which they also bought from the Waksachi or intervening Wukchumni.

Pottery

323 Pottery was not made by the lake tribes.[46] Even a knowledge of it in old times was denied by M.G., while J.A. said she had seen it made by Wukchumni women (M.P. and daughters) but did not remember how. My demonstration of the motor actions of making a "rope" of clay merely elicited a description of firemaking. Red clay
[134 was sometimes shaped with the fingers into
757] little dishes (ṭipe´kʌl ki´wʌs). It was chiefly valued as a medicament smeared on the chest.
[438] A reliable Wukchumni informant (M.L.) said that pottery was traded to the lake people.

Basketry

285 No detailed description of basketmaking
438 techniques was obtained from the Chunut and Tachi informants, but both had important statements concerning forms and materials. This aged Tachi informant (M.G.) repeatedly affirmed that the lake people did not make coiled baskets in old times, that the coiled pieces were obtained by trade. The Wechihit and Choinok had coiled wares, she believed, but the foothill people, Wukchumni, Gawia, and Yaudanchi were the ultimate source for lake trade. In exchange, the handsome tule mats from the lake were prized in the foothills. The Tachi, Wowol, and others dwelling in the tular used a twined technique exclusively on tule and willow materials. There is little remaining evidence of the tule wares, as they are perishable in texture and not attractive as museum pieces.

285 In the collections of the University of California are a few pieces from "Santa Rosa Rancheria, Lemoore" which might have been made by a member of any lake tribe, and a few tule baskets of miscellaneous provenience.

The following basket types were described by M.G. (see figs. 2, 3). An open conical basket (čoto´t), which might be large or small, was made of triangular tules (pumu´k). A seed

[46] Vide Gayton, Yokuts and Western Mono Pottery-Making.

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773 Holo'anši, J.P.'s maternal grandfather [great uncle ?] was a very fine hunter and was frequently out with his weapons. One morning he saw a bear with two cubs; he went home and told his friends about it. The next morning twelve men, each with bow and arrows, started for the bear's cave.

"Who is going to run?" they said. Holo'anši offered to as he was a good runner, but another man wanted to, too: they argued a bit. Meanwhile the others arranged a semi-circle of stakes, driving them into the ground in front of the cave. They took up shooting positions behind these. Holo'anši went to the cave entrance to lure the bear, but the bear rushed at him before he could draw his bow. He was forced to run toward the circle of stakes with the bear clawing at his heels. The second runner jumped in to draw the bear's attention, and another man succeeded in shooting her in the shoulder. She continued to pursue the second runner. Holo'anši dashed in the cave to grab the cubs, but the mother saw him and went after him. Now, Lizard was the dream helper of Holo'anši and he came to his rescue. He gave that man power to climb right up the side of the cave and whisk up and out of the entrance just out of the bear's grasp. But outside Holo'anši was forced to run, and the bear still chased him. Holo'anši tried to climb a high rock pile but at that moment the bear caught him, clawing and biting him. The other men were all too frightened to do anything, save the second runner who came up and shot the bear three times as she turned toward her cave again.

The men carried Holo'anši back to camp. They put his eyes back and all his skin in place. They covered him entirely with eagle down and dosed him with jimsonweed. He began to get better at once, but some bad doctor saw that this was his chance to do away with Holo'anši. He shot "poison" at him, and the old man died the next day.

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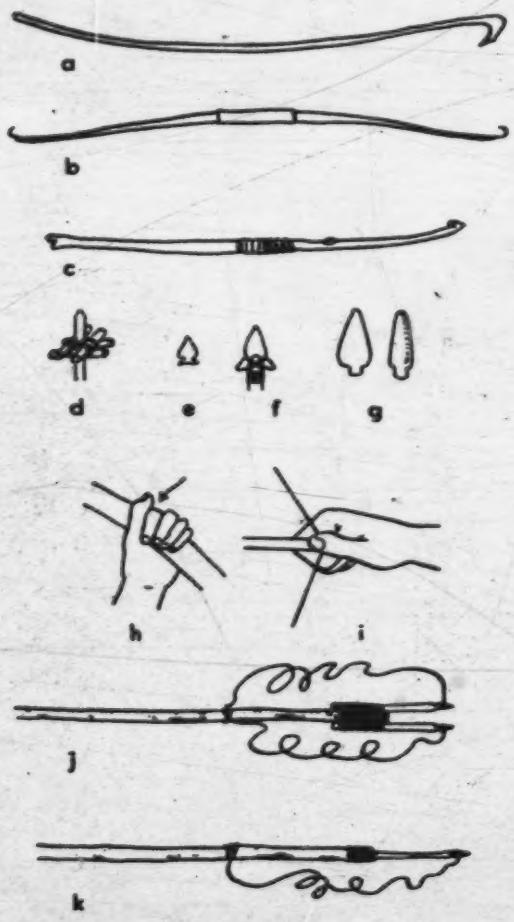
322 Weapons.---The plain bow (ta'dup) and sinew-backed bow (tap) were used by the Wukchumni. S.G. claimed that both were made of elderwood (wuse'ta). He said few men knew how to make a sinew-backed bow, but any man could and did make the plain kind -- as follows. When the length had been chosen and cut, and the bark peeled off, the stick was set with one end in a crotch and the other end pulled until it split down its entire length. If it split properly, two bows could be made from the two halves. Thereafter shaping was done with a large obsidian blade. No grip was cut on the plain bow. To aid flexibility occasional gashes were cut on the inside curve, which was the bark side of the wood, i.e., the core of the wood was on the outside. The bow was heated over glowing coals and pulled around the knee to form the center curve. The end re-curvature, which was slight in the plain bow, was made by fixing the end in a vicelike crotch and pulling it until the desired effect was obtained. The shaping progressed bit by bit and was not accomplished in less than three to six days.

1: Gayton E-5 (1925-1930) 1948 NS29 Yokuts NS29

411 322 Of the ten plain Yokuts bows in the Museum of Anthropology, University of California, four still have the bark on the inner side. None shows much recurving, and they are no doubt the basis for Kroeber's comment that Yokuts "common bows for small game were little more than a shaped stick...."[172] Plain bows had strings of čidːk twine.



[227]

Fig. 10. Hunting and fishing equipment. a, rodent hook. b, sinew-backed bow (about 4 feet). c, self-bow (about 3 feet, unstrung). d, bird-arrow tip. e, obsidian tip of deer arrow. f, same showing fastening. g, flint tip of war arrow. h, bow grasp with arrow rest. i, arrow release. j, k, double and single harpoons.

[172] Handbook, 530.

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322 As the best instrument of this group, No. 1-3943 was selected for description. It measures 3 feet, 7-3/4 inches in over-all length and is 1-3/8 inches in width at center. The bow curvature is slight, and only one end is now recurved. The ends differ, one having a projection to carry the permanent fastening of the bowstring, the other hooked (fig. 10, c), the string being hooked and unhooked over this end. This weapon differed from the others of the group in having a hand grasp 7-1/2 inches wide of skin thong wound around the bow at the center. The wrappings were exactly parallel, touching but never overlapping. The wrapping was started by laying one end along the outside and returning the wrapping over this end. On
[237] the back about 6 inches above the grasp was glued a red-headed woodpecker's scalp. It is possible that this was a hunter's talisman.

The sinew-backed bow (fig. 10, b) was doubtless made of mountain cedar [juniper] as
[439] Kroeber states, as was true for the neighboring Mono from whom, in fact, most Yokuts bows were obtained.[173] The sinew used was that taken from the long back muscles of deer; it was fastened to the back of the bow with glue made of boiled deer brains. The string was of sinew (pik·t).

Kroeber states:

> The commonest type [of bow], primarily for the hunt, was nearly as long as a man, of about two fingers' width and the thickness of one. The ends were recurved, probably through a curling back of the thickened sinew. Bows made specifically for fighting were shorter, broader, and flatter, and pinched in the middle. Except for being unpainted and probably not quite so extreme in form, this type appears to have been the same as the northern California one.[174]

Powers describes Yokuts bows as he saw them.[175]

> As to their implements and weapons, there are some interesting particulars to be noted.
> [439] Here, as everywhere on the Sacramento and Joaquin plains, the Indians make no bows [sic—no sinew-backed bows], but purchase them all from the mountaineers. This is because they have no cedar. This wood is extremely brittle when dry, and is then the poorest possible material for bows; but by anointing it every day with deer's marrow while it is drying the Indian overcomes this quality and renders it the best. The bow is taken from the white or sap wood, the outside of the tree being also the outside of the bow. It is scraped and polished down with wonderful painstaking, so that it may bend evenly, and the ends are generally carved so as to point back slightly.

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[173] A description of making the sinew-backed bow is in the Wobonuch section, Pt. II.

[174] Handbook, 530.

[175] P. 373.

411 Then the Indian takes a quantity of deer's
237 sinew, splits it up with flint into small
322 fibers, and glues them on the outside or flat back of the weapon until it becomes semi-cylindrical in shape. These strings of sinew, being lapped around the end of the bow and doubled back a little way, impart to it its wonderful strength and elasticity. The glue is made by boiling the joints of various animals and combining the product with pitch.

I saw a bow thus carefully made in the hands of an aged chief and it was truly a magnificent weapon. It was about five feet long, smooth and shining -- for when it becomes a little soiled the fastidious savage scrapes it slightly with flint, then anoints it afresh with marrow -- and of such great strength that it would require a giant to bend it in battle. For lack of skins the owner carried it in a calico case. The string, composed of twisted sinew, was probably equal in strength to a sea-grass rope of three times its diameter. When not used the bow was unstrung, and the string tied around the left limb of the bow, and to prevent the slightest lesion of either the bow or the string the former had a section of fur from some animal's tail, about four inches long, slipped onto it.

411 Arrows (toi´yuš) according to S.G., were
237 about 2 feet long for deer, a bit less than 2 feet for bear-killing, as not more than 2 inches of the arrow extended beyond the bow when it was drawn. For small game a 4-foot, one-piece, arrow of willow (kai´wan) was used. The cane arrow (si´k·d) had a foreshaft of oak sprout, which, when shaped to a point, was ground down on a rock and then heated over coals for hardening. Deer arrows were of cane with an obsidian tip (fig. 10, e, f) on the foreshaft. All arrows had three feathers, preferably "squirrel" hawk (šo´hup) wing feathers. The top of each split feather was fastened first, each one being inserted under a separate turn of the binding sinew. When the bottoms of the feathers were fastened down, they were laid a trifle out of line to give a slight spiraling of the feathers, "to make the arrow fly straight." The feathers had to be left wing feathers, as only one half of each feather was used, and these were always laid on with the "right side" (outside) toward the worker.[176] S.G. did not know how the obsidian
[438] points were made. He says a natural obsidian was obtained from the lake people: if his statement is correct they must, in turn, have gotten it from Coast Range people.

411 Arrows were kept in a quiver made of a
237 whole fox skin with fur left on. It was called a´oja timai´ya (fox sack) and was hung on the right shoulder.

Of Yaudanchi arrows Kroeber states:[177]

[176] I neglected to inquire if a left-handed arrowmaker used right wing feathers which, it seems, would be required. Possibly such a man would insert the feathers with the wrong side toward himself.

[177] Handbook, 530.

411 237 The arrow, shikid, generically, had three forms among the Yaudanchi, known as t'uyosh, djibaku, and wuk'ud. The war arrow had no foreshaft, but a rather long wooden point, notched. It measured from the finger tip nearly to the opposite shoulder or a trifle more than the possible pull of the bow.... The ordinary hunting arrow had a long sharpened foreshaft, but no real head. The deer arrow had foreshaft and flint head, but the foreshaft was socketed without glue or tie, so that the main shaft would disengage after hitting.

Powers saw two types of arrows:[178]

411 [824] Of arrows, the Indians living on the plains made some for themselves of button-willow, straight twigs of the buckeye, and canes, but the most durable came from the mountains. There are two kinds, war-arrows and game-arrows; the former furnished with flint heads, the latter not. The shaft of the war-arrow consists of a single piece, but that of the game-arrow is frequently composed of three pieces, furnished with sockets so adjusted as to fit into each other snugly. When the hunter, [224] lurking behind the covert, sees the quarry approaching, he measures quickly with his eye the probable length of shot he will have to make, and if it is a long one he couches his arrow with three pieces; but if a short one, with extraordinary quickness he twitches it apart, takes out the middle section, claps the two end sections together again, and fires. An arrow made of what we should call the frailest of all woods, the tender shoot of a buckeye, and pointed with flint, has carried death to many a savage in battle. I have seen an Indian couch a game-arrow, which was pointed only with a section of arrow-wood, and drive it a full half-inch into the hardest oak!

411 324 The arrow straightener used by all Yokuts has been described and illustrated by Kroeber:[179]

The prevailing arrow straightener among the Yokuts is the Southern California form: a well-shaped rectangular block of stone, often rounded or ridged on top, and invariably with a polished transverse groove. This implement is undoubtedly associated with the employment of 411 cane for arrows: the Yokuts are known to have 322 used the plant, though not exclusively. The joints were warmed in the groove and bent by hand or on the ridge after the stone had been heated; the groove was also used for smoothing. The holed straightener of wood or horn for [171] wooden shafts, as employed all over northern California, has not been reported from the Yokuts.[180]

Cane arrows were realigned before and after each usage. The cane shaft, with foreshaft removed, was grasped at each end and drawn across the hot groove with a rolling,

[178] p. 374.

[179] Handbook, 530, pl. 49, c.

[180] Latta (Uncle Jeff's Story, 20) recently reports that a perforated stone disc was so used by the Choinimni. A.H.G.

pushing motion. Willow arrows were straightened by the same method.

223 Bird hunting.---Kroeber attributes the
349 pigeon booth to the Yaudanchi and describes a similar method by which they captured eagles.[181]

The hunter lay in a concealed hut of brush. He did not look at his quarry until it was caught, fearing that it flee his glance. Outside were placed a stuffed animal skin as bait
[237] and a live hawk as decoy. The trap was a noose fastened to a bent-over pole sprung from a trigger. Before the eagle was killed by being trod on, it was addressed: "Do not think I shall harm you. You will have a new body. Now turn your head to the north and lie flat!" Only men who knew this prayer and the necessary observances undertook to kill eagles.

223 The Wukchumni went up the Kaweah River into Patwisha territory to get wild pigeons (šo'owan). They had their own booths up
[239] there. They took with them house mats for temporary shelter, and these they sold to the Patwisha when returning.

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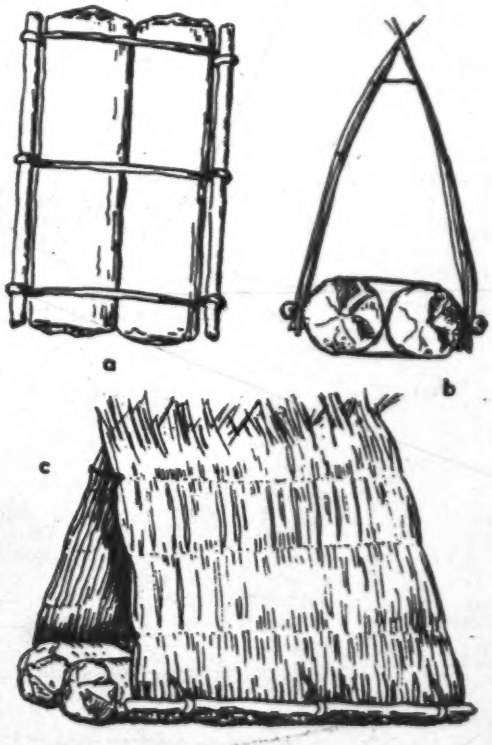

Fig. 11. Wukchumni hunting and fishing blind. a, log float. b, end view. c, sewn tule screens in place.

181 Handbook, 529, 524, pl. 45.

Salt

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[439]

Modern "American" salt is called kuyu. In old times two kinds of salt were available. Rock salt (tus) was bought from the Monachi (Eastern Mono), who said it "came from a whole hill of salt that looked like snow." Before it was used this salt was heated on hot coals, which caused it to crumble. The other and more common salt (a´d:t) was derived from marsh grass, and was called in English "red salt" because "it looked red all over the grass."

Once M.L. and her stepmother, who was a Gawia, went over to Haditao for salt. The old women dug up the grass that grew there. She got some wood and made a fire. At sundown she put the grass on the fire which had burned down to coals. M.L. went to sleep but her stepmother stayed up until the grass was reduced to ashes. Then she lay down for a little while. She would not let the little girl look closely at the fire, nor would she herself eat anything. She worked all the next day piling up more grass. At sundown she ate a little bit but would not drink, explaining that if she ate much or drank water there would be nothing in the fire when she finished. When the ashes were brushed away there were lumps of salt in the bottom of the fire. The old woman lifted these out and freed them from the ashes by shaking them in an open-twined basket.

In 1925 M.L. had some grass-salt which she prized. It was greyish pink in color, had the texture of coarse sugar and the taste of mild vinegar.

Kroeber makes a somewhat different statement about grass-salt.[191]

> The Yaudanchi,...with other southern tribes, gathered a salty grass known as alit and beat it on stones to extract the juice; which was particularly favored with green clover.

This was a grass growing in alkaline ground which was abundant in the tular.

Woman's Household Equipment

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A Wukchumni woman's housekeeping equipment comprised one or more digging sticks, a soaproot brush, hot-rock lifters, and a "set" of baskets. The digging stick (ča´poi, lit., mountain ash) was made of manzanita, if obtainable, or of young white oak. The length varied according to the owner's preference. The tip was charred and rubbed down on rough stone which gave a heat-hardened point; the point was reworked by the same method when it became too blunt. Sometimes a woman who liked a short stick (about four feet long) would contrive a

[191] Handbook, 530.

412 nobby upper end by capping it with boiled soaproot and tying over this a piece of buckskin.
322 Weights were never added.

The soaproot brush (čine ʔil) varied in size from small ones some 4 inches long to large ones of 9 inches.[192] They were used variously for brushing up meal when preparing foodstuffs, or for brushing the hair. Hair-
[302] brushes were large and made of coarse fibres which have hook-like tips. One in a family was sufficient. The root to make a brush was dug after the flower had faded when the fibres around the root had reached a maximum toughness. The plant's top was torn off and the fibres carefully removed from around the bulb. The bulb was boiled in water until it became a plastic cream-colored mass. The fibres having been arranged as a brush and so tied, the bulb mass was pressed and shaped over the end as a handle and tied in place with several wrappings
[314] of string. The liquid from the bulb was viscous and was applied to burden baskets and cradles, where it dried as a practically colorless stiffener.

415 The set of rock lifters consisted of a pair of straight sticks and a looped one. The looped lifter, commonly called mushstirrer because one must necessarily stir about in the mush to find the cooking stones, was made of a peeled withelike stick, heated over coals and then bent around the foot to form a loop. The double handle thus formed was tied with a milkweed string or with a thong (see pl. 1, right verticals). Wild grapevine withes were used for a light type of lifter which was peeled, looped, and tied while still green and flexible. Two sticks from Drum Valley are made of bent young oak and, according to the collector's notes, are tied with the inner bark of oak.[193] Although these looped sticks were used to extract cooking stones from food which was being boiled, the hot stones were lifted in with a pair of pine sticks flattened out at one end. As these were often charred they were not allowed to touch the food, and hot rocks to which ashes clung were dipped in water on their
[439] way into the food. The best hot-rock lifters were of pine and were bought from the Eastern Mono, who made them for trade. A medium-sized basket (8 to 12 inches in diameter) of simple flaring type was considered a suitable payment in return.

285 The "set" of baskets comprised six types
482 essential for food-gathering, preparation, and cooking. (See figs. 2 and 3.) The large conical burden basket (a ñaš) was of split willow. It was diagonally twined, of close work, and was stiffened with soaproot liquor. Because of

[192] These collected by Dr. Barrett and now in the University of California Museum of Anthropology.

[193] University of California, Museum of Anthropology, nos. 1-10846, 1-10848; Dr. S.A. Barrett, collector; cf. Kroeber, Handbook, fig. 38.

[P. 189 b] Chuckchansi

412 in diameter, said N.W. (3 to 4 ft., 1 in., said J.R.). The wood, yellow and hard, was [824] from a long straight limb of a tree growing more abundantly at North Fork than at Coarse Gold. (It was mountain mahogany, grew around Coarse Gold but not at higher altitudes, said J.R.) The limbs were straight, grew close to the ground. The point seldom became dull. The stick was operated with a paddling motion, the digger bending over; "sometimes one stood up but that was too tiring" (N.W.). All types of digging were accomplished with this instrument: for all root materials, postholes, graves.

[824 Long poles for shaking down acorns were 223] made of "peppermint wood." They were crooked at the end by heating and bending while pliable, said N.W.

412 Soaproot brushes were used for all brush requirements: hair brushes, sweeping up acorn ● 322 meal at mortar holes, washing and scrubbing baskets, sweeping the house floor, etc. They were made in several sizes, from one foot wide down to little ones of one or two inches. About midsummer, July, women went out with digging sticks and obtained sackfuls of the soaproot plants. These were made up into brushes at once as they do not need to be dried. First the fibrous exterior was removed; then the bulbous interior was put on a bed of coals, buried, and left to roast at least half a day. When removed, the bulb is "like potatoes"; the skin will rub off. Actually the bulb is layered, onionlike, and the inside of each layer contains a soapy substance. Layer by layer the material was scraped off with the teeth (today a knife is used) and chewed. It turned white; it was then deposited in a basket to be used later as the platic handle of the brush.

The fibrous exterior was then taken. The bottom, coarser ends, which served as bristles, were pinched together firmly and bound between two sticks.[109] The upper end, which became the interior of the handle, was twisted tight, squeezed, and bound up. Two or three layers of root fibre were needed for an average-sized brush. All were bound firmly together, through and through. The binding cord was not specified; presumably it was milkweed string. Finally, the handle was wrapped round and round. Then the soapy plastic was smeared on; its gluey quality allowed it to be perfectly smoothed. The two sticks on the bristle end were still in place and by these the brush was hung up to dry, either in the sun or in the house. One week was needed for the complete hardening process.

Sometimes brushes were made from fibres or uncooked roots which were used for washing purposes; they have light-colored bristles. The bristles are said to turn dark in cooking. [But, above, they were also said to have been removed before cooking; an irreconcilable state-

[109] Barrett and Gifford illustrate soaproot brushes at this and other stages of manufacture (ibid., pl. XXIVI).

412 322 ment. -- A.H.G.] The plastic material for the handle was taken from another uncooked root.

515 Soaproot was used to wash the hair, head, baskets, etc., said J.R. (Since skin clothing hardened when wet, it was not washed.) The root, when pounded, exuded a soapy juice which was then mixed with water as a washing fluid which lathered. The fibres were saved for brushes. J.R. added that, when the bulb was [262 252 171] roasted, it was "just like roasting potatoes." [The inference is that some varieties of soaproot were pit-cooked and eaten as by other Yokuts, Miwok, Pomo, etc. -- A.H.G.]

415 322 Mushstirrers were made of green chaparral [Ceanothus?], heated and bent into shape, tied with milkweed string at the neck of the loop and at the ends of the handle. Total length, as seen by Thrall, a bit over two feet. A pair of straight sticks some four feet long were used like tongs on hot cooking stones.

415 324 Cooking stones were made of soapstone, said N.W.; she called these pako'yun or halix. They were heated and dropped in acorn mush to cook it. Plain stones broke when so used and "spoiled the food."

Soapstone dishes (approximately 6 in. in diameter, 2 in. deep, with walls 1 in. thick) were made by the Chukchansi. They were used [412 322] for cooking larvae and worms.[110]

Wooden mortars were known to the Chukchansi, says Kroeber.[111]

323 The absence of pottery agrees with previous findings of Kroeber and Gayton.[112]

411 Weapons.--Plain and sinew-backed bows were made by Chukchansi (and Miwok). The sinew-backed bow was of cedar, about three feet long. Deer sinew from each side of the backbone, about 18 inches long, was glued on the back of [237] the bow. The sinews had been kept dried for this purpose. Once on the bow, it was never permitted to get wet. The bowstring was always sinew. Nevertheless, the bow was kept outside the house, according to J.R., but always unstrung when not in use. This type of bow was for hunting large game -- deer, bear, cougar, coyote, wildcat -- and for warfare.

A plain bow of mountain willow, four feet long and strung with a milkweed string, was used for everyday shooting of squirrels, gophers, rabbits, and birds. The informant J.R. maintained that the same type of arrow was used with either bow. [Doubtless the same arrow could be used, but it is unlikely that only one arrow type was used. Moreover, the flat bird arrow is mentioned in a Chukchansi myth. -- A.H.G.]

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[110] Cf. Kroeber, Handbook, 527.

[111] Ibid., 528.

[112] Ibid., 537; Gayton, Yokuts and Western Mono Pottery-Making.

Y W 439 the passes were again open. The Waksachi never went east to trade; on rare occasions two or three young men might go over to visit as a kind of adventure. The Eastern Mono never came Y W [574] to social functions, the Ghost Dance of 1870 being the first contact of a social order.

The articles brought from the east to trade were: rock salt; piñon nuts; mountain sheep skins (diwe´s:p); moccasins; a sleeveless buckskin jacket sewn up the sides; leggings of foxskin cured with the fur on, which were worn tied above the ankles and just below the knees; baskets; pine sticks for lifting hot cooking stones; sinew-backed bows; unfinished obsidian arrowheads. Payment was made in humana beads and smaller beads, acorn meal, and fine Yokuts baskets. In later days red beads and Spanish blankets were wanted by the Eastern Mono.

When the Waksachi were encamped at Gaines Flat, the Telamni, Gawia, and other valley dwellers would come up to get stone mortars and pestles. They asked the Waksachi to sell those very things they were using; the Waksachi never took any others along for trade. (Perhaps this relieved them of the burden of carrying them home on the upward journey, having had their Y use of them.) B.O. here interposed a descrip- [322] tion of the Telamni mortar, which was made from the crotch of an oak tree. The Telamni also wanted small stone mortars of the type used for tobacco. While they wanted stone mortars for themselves, they, in turn, sold their oakwood mortars to the Chunut, Tachi, and Wowol of the lake region.

Warfare

W Y 726 B.O. stated that the Wechihit, Choinimni, and Hoshima (Northerners in general) would come over jointly to fight the allied Waksachi and Wukchumni. These fights were rare and were tactically simple; they were called una´na pi´dikan. There were no special officers of war, but certain brave men would be acknowledged leaders on these occasions. The leader stood back and directed the fighting while the opposing warriors lined up, each man shooting at the one directly opposite. Bows and arrows were the only weapons; no spear or shield was used. There was no waiting for a dream or omen before going into conflict. The causes of these hostile interludes are obscure.

W Y [177] Raiding for horses became a favorite aggressive activity after their introduction by the Spanish on the coast; they were available in the valley in, roughly, 1800 and after. Four or five men would go west to the valley plains, and probably to the enemies mentioned above, to steal a horse, which they would then lead off, kill, cook, and eat. The Waksachi never stole from the Wukchumni. There is a W Y [556] strong desire for horse ownership among these people even at the present time, 1927.

terms Michahai). S.O. could recall only two specific patterns and the generally used shamans' pattern. A man with Crow totem would always use black, but this might be arranged any way he chose, S.O. thought. The favorite pattern for a Crow pošam was a horizontal black band on each cheek under the eyes, or sometimes over the eyes. A Deer man's emblem was one to three rows of black dots drawn along the zygomatic arch from nose to ears. Shamans used three horizontal rows of lines or dots on each cheek in the order red, black, red, and the same on arms and legs. At the Ghost Dance gatherings any person could and did use this pattern. [The use of white paint was not mentioned, and I failed to note its omission.]

SUBSISTENCE

Hunting

Bows and arrows.--The following information is from B.O. who was a noted hunter.

The plain bow (e·´d^{u}) was in common use by every man, and was the type first used by boys. It was made of pepperwood (no´j·b^{1}; California Laurel), and was of the same proportions and curvature as the sinew-backed bow. It was strung with a two-ply sinew cord.

The sinew-backed bow (ta´mued^{u}) was of juniper wood (wa·p) which only grew up in the mountains, i.e., from Waksachi territory eastward. The length was from 3 to 4 feet, and 2 inches the width at the center: roughly measured from the sternum to fingertips; if wanted extra long, from one shoulder to opposite fingertips. There was no indentation at the grip. The ends were recurved: heated over coals, the end would be braced into some crevice and forced to bend by leverage pressure on the center of the bow. This was a slow task requiring many repeated efforts. After the bow was shaped, sinew (ta´mob^{1}) from deer legs was soaked in water, then beaten between two flat stones. A heavy glue made by boiling deer horns was smeared along the back of the bow and the sinew laid into it. The sinew was so placed that a piece about one inch long extended beyond the bow at either end. When dry, these curled back, forming hooks for the better attachment of the bowstring. A hand grasp of leather was glued around the bow at the center; sometimes small feathers were inserted around the edges of this. The bowstring was 2-ply sinew cord. In fitting a new string, the looped loose end was placed first and the other end pulled up to the desired tension and tied permanently in position. Bows were left unstrung most of the time. To unstring, the tied end was placed against the right instep, the left hand grasping the upper end. The bow was then pulled inward and downward sufficiently to relax the string, which was slipped off with the right hand.

2: Kroeber E-5 (ca. 1918) 1953
NS29 Yokuts NS29
Miwok NS16

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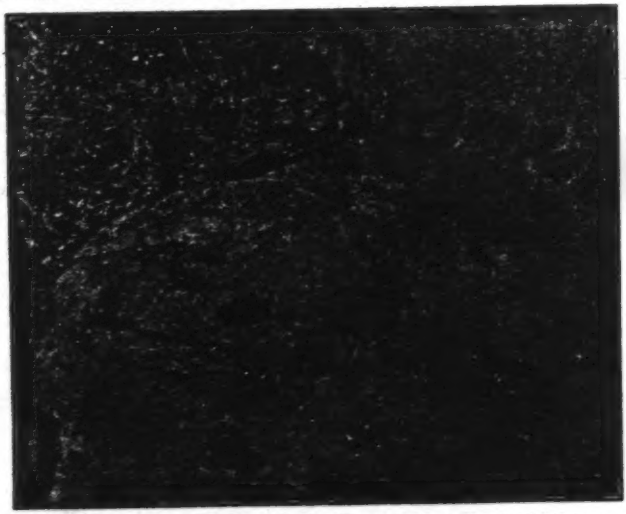

MIWOK MORTAR HOLES IN BEDROCK AND BOWLDER PESTLES

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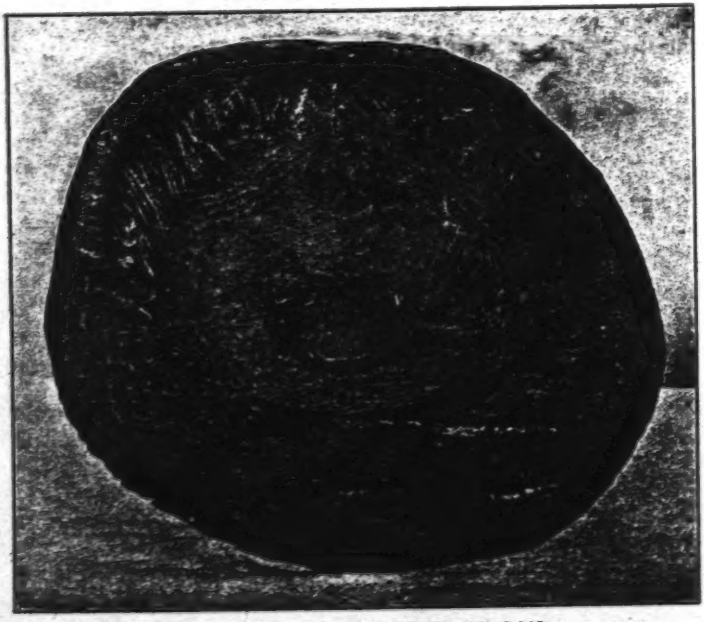

VALLEY YOKUTS MORTAR OF OAK

[Facing p. 524]

7:Powers J-5 (1871-1876) 1877 NS29 Yokuts NS29

liberally of their substance. But he was yet an unknown prophet. They were incredulous, and mostly laughed him to scorn, whereupon he would leave the village in high dudgeon, denouncing war upon their heads, and threatening them with a continuance of the drought another year far worse than before. Sure enough, the enraged Hopodno brought drought a second year, and the Indians were smitten with remorse and terror, believing him endowed with superhuman power; and when next year he made a second pilgrimage, offerings were showered upon him in abundance, and men heard him with trembling. He compelled them to pay him fifty cents apiece, American money, and many gladly gave much more. And he made rain.

As to their implements and weapons, there are some interesting particulars to be noted. Here, as everywhere on the Sacramento and Joaquin plains, the Indians make no bows, but purchase them all from the mountaineers. This is because they have no cedar. This wood is extremely brittle when dry, and is then the poorest possible material for bows; but by anointing it every day with deer's marrow while it is drying the Indian overcomes this quality and renders it the best. The bow is taken from the white or sap wood, the outside of the tree being also the outside of the bow. It is scraped and polished down with wonderful painstaking, so that it may bend evenly, and the ends are generally carved so as to point back slightly. Then the Indian takes a quantity of deer's sinew, splits it up with flint into small fibers, and glues them on the outside or flat back of the weapon until it becomes semi-cylindrical in shape. These strings of sinew, being lapped around the end of the bow and doubled back a little way, impart to it its wonderful strength and elasticity. The glue is made by boiling the joints of various animals and combining the product with pitch.

I saw a bow thus carefully made in the hands of an aged chief, and it was truly a magnificent weapon. It was about five feet long, smooth and shining—for when it becomes a little soiled the fastidious savage scrapes it slightly with flint, then anoints it afresh with marrow—and of such great strength that it would require a giant to bend it in battle. For lack of skins the owner carried it in a calico case. The string, composed of twisted sinew, was probably equal in strength to a sea-grass rope of three times its diameter.